ANNUAL AND INTERANNUAL VARIATIONS OF ERS-1 SCATTEROMETER WIND FIELD

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The AMI measurements of sigma-naught or normalized radar cross section were determined continuously by ESA after 1 January 1992. No unique wind vector data set can be computed because of the biharmonic characteri stic of the radar backseat ter measurement. Although many processing schemes are being developed (e. g., ESA, IFREMER, Météo-France, NOAA), the Freilich and Dunbar (1993) scheme is currently the only method that is time-invariant for sigma-naught data recorded since January 1992. The Freilich and Dunbar (1993) 10-m height wind vector data product is named CMODFD.

During 1992 the monthly mean CMODFD u (cast-west; positive eastward) and v (north-south; posit ive northward) component speeds compared favorably with co-located moored-buoy 10-m height wind measurements at 50-60 sites. For example, monthly biases of u and v components were not significant at the 95% confidence level, annual-mean correlation coefficients between monthly mean u and v comparisons were each about 0.9, annual-mean root-mean-square differences between monthly mean *u* and v matchups were each about 1.2 m s-l, and monthly mean CMODFD *u* and v component speeds were typical] y 10% smaller than corresponding buoy observations throughout the -9 m s^{-1} to 6 m s^{-1} moored-buoy wind speed range. No data set is error free and, therefore, no unique reference data set exists to evaluate the satellite-derived surface wind field. Some results from a comparative study between CMODFD and ECMWF wind products will also be described.

The 1992 annual-mean 60°S - 60°N CMOD FD wind vectors portrayed the climatological-mean surface wind field, such as westerlies near 45° latitude, easterlies near 15° latitude, u = 0 m s^{-1} near 30° latitude, and v = O m s^{-1} associated with the intertropical Convergence Zone (ITCZ) in the Atlantic and Pacific and with the South Pacific Convergence Y-one. Geographical and amual-cycle patterns of CMODFD u component arc consistent with large-scale ocean currents, such as the Gulf Stream, North Equatorial Countercurrent, and South Atlantic, South Indian and South Pacific Currents. Monthly mean latitudinal positions of the CMODFD-derived surface wind convergence associated with the ITCZ and maximum rainfall within the SOS - 10ON region of the Atlantic Ocean were highly correlated. The CMODFD-derived intensity of the Southern Hemi sphere convergence zones is con sistent with rainfall est imates. Month] y mean CMODFD 1992-to-1993 variations for January - June (depending on data availability) will be described, such as the zonal wind distribution along the Pacific equate] during the two-peak El Niño episode.